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28 NOV 2000

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
REQUEST FOR FILING NATIONAL PHASE OF
PCT APPLICATION UNDER 35 U.S.C. 371 AND 37 CFR 1.494 OR 1.495

To: Hon. Commissioner of Patents
 Washington, D.C. 20231

TRANSMITTAL LETTER TO THE UNITED STATES
 DESIGNATED/ELECTED OFFICE (DO/EO/US)

Atty Dkt: PM 275385 /151227.3/DV/MB
M# /Client Ref.

From: Pillsbury Madison & Sutro LLP, IP Group:

Date: November 28, 2000

This is a **REQUEST** for **FILING** a PCT/USA National Phase Application based on:

| | | |
|------------------------------|----------------------------------|---|
| 1. International Application | 2. International Filing Date | 3. Earliest Priority Date Claimed |
| <u>PCT/CH99/00503</u> | <u>25</u> <u>OCT</u> <u>1999</u> | <u>25</u> <u>OCT</u> <u>1999</u> |
| <u>CH</u> country code | Day MONTH Year | Day MONTH Year (use item 2 if no earlier priority) |

4. Measured from the earliest priority date in item 3, this PCT/USA National Phase Application Request is being filed within:

(a) ☒ 20 months from above item 3 date (b) ☐ 30 months from above item 3 date,

(c) Therefore, the due date (unextendable) is June 25, 2001

5. Title of Invention PAYMENT TRANSACTION METHOD AND PAYMENT TRANSACTION SYSTEM

6. Inventor(s) RITTER, Rudolf et al

Applicant herewith submits the following under 35 U.S.C. 371 to effect filing:

7. ☒ Please immediately start national examination procedures (35 U.S.C. 371 (f)).

8. ☐ A copy of the International Application as filed (35 U.S.C. 371(c)(2)) is transmitted herewith (file if in English but, if in foreign language, file only if not transmitted to PTO by the International Bureau) including:

a. ☐ Request;

b. ☐ Abstract;

c. pgs. Spec. and Claims;

d. sheet(s) Drawing which are ☐ informal ☐ formal of size ☐ A4 ☐ 11"

9. ☒ A copy of the International Application has been transmitted by the International Bureau.

10. A translation of the International Application into English (35 U.S.C. 371(c)(2))

a. ☐ is transmitted herewith including: (1) ☒ Request; (2) ☒ Abstract;

(3) 18 pgs. Spec. and Claims;

(4) 1 sheet(s) Drawing which are:

☐ informal ☒ formal of size ☒ A4 ☐ 11"

b. ☐ is not required, as the application was filed in English.

c. ☐ is not herewith, but will be filed when required by the forthcoming PTO Missing Requirements Notice per Rule 494(c) if box 4(a) is X'd or Rule 495(c) if box 4(b) is X'd.

d. ☒ Translation verification attached (not required now).

RE: USA National Filing of PCT /CH99/00503

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11. ☒ **PLEASE AMEND** the specification before its first line by inserting as a separate paragraph:
a. ☒ --This application is the national phase of international application PCT/CH99/00503
filed October 25 1999 which designated the U.S.--
b. ☐ --This application also claims the benefit of U.S. Provisional Application No.
60/____, filed ____.--
12. ☐ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3)), i.e., **before 18th month from first priority date above in item 3, are transmitted herewith (file only if in English) including:**
13. ☒ PCT Article 19 claim amendments (if any) have been transmitted by the International Bureau
14. ☐ Translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)), i.e., of **claim amendments** made before 18th month, is attached (**required by 20th month from the date in item 3 if box 4(a) above is X'd, or 30th month if box 4(b) is X'd, or else amendments will be considered canceled**).
15. **A declaration of the inventor** (35 U.S.C. 371(c)(4))
a. ☒ is submitted herewith ☒ Original ☐ Facsimile/Copy
b. ☐ is not herewith, but will be filed when required by the forthcoming PTO Missing Requirements Notice per Rule 494(c) if box 4(a) is X'd or Rule 495(c) if box 4(b) is X'd.
16. **An International Search Report (ISR):**
a. Was prepared by ☐ European Patent Office ☐ Japanese Patent Office ☐ Other
b. ☒ has been transmitted by the international Bureau to PTO.
c. ☐ copy herewith (____ pg(s).) ☐ plus Annex of family members (____ pg(s).)
17. **International Preliminary Examination Report (IPER):**
a. ☒ has been transmitted (if this letter is filed after 28 months from date in item 3) in English by the International Bureau with Annexes (if any) in original language.
b. ☐ copy herewith in English.
c.1 ☐ IPER Annex(es) in original language ("Annexes" are amendments made to claims/spec/drawings during Examination) including attached amended:
Specification/claim pages #____ claims #
Dwg Sheets #
c.2 ☐
d. ☐ Translation of Annex(es) to IPER (**required by 30th month due date, or else annexed amendments will be considered canceled**).
18. **Information Disclosure Statement** including:
a. ☐ Attached Form PTO-1449 listing documents
b. ☐ Attached copies of documents listed on Form PTO-1449
c. ☒ A concise explanation of relevance of ISR references is given in the ISR.
19. ☒ **Assignment** document and Cover Sheet for recording are attached. Please mail the recorded assignment document back to the person whose signature, name and address appear at the end of this letter.
20. ☒ Copy of Power to IA agent.
21. ☐ **Drawings** (complete only if 8d or 10a(4) not completed): ____ sheet(s) per set: ☐ 1 set informal; ☐ Formal of size ☐ A4 ☐ 11"
22. Small Entity Status ☐ is **Not** claimed ☐ is claimed (**pre-filing confirmation required**)
22(a) ____ (No.) Small Entity Statement(s) enclosed (since 9/8/00 Small Entity Statements(s) not essential to make claim)
23. **Priority** is hereby claimed under 35 U.S.C. 119/365 based on the priority claim and the certified copy, both filed in the International Application during the international stage based on the filing in (country) Switzerland of:
- | | <u>Application No.</u> | <u>Filing Date</u> | | <u>Application No.</u> | <u>Filing Date</u> |
|-----|------------------------|--------------------|-----|------------------------|--------------------|
| (1) | PCT/CH99/00503 | 25 OCT 1999 | (2) | _____ | _____ |
| (3) | _____ | _____ | (4) | _____ | _____ |
| (5) | _____ | _____ | (6) | _____ | _____ |
- a. ☒ See Form PCT/IB/304 sent to US/DO with copy of priority documents. If copy has not been received, **please proceed promptly to obtain same from the IB**.
b. ☐ Copy of Form PCT/IB/304 attached.

RE: USA National Filing of PCT/CH99/00503

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24. Attached: **DRAWING CHANGE AUTHORIZATION REQUEST**25. Preliminary Amendment: **SEE ATTACHED**25.5 Per Item 17.c2, **cancel original** pages #__, claims #__, Drawing Sheets #26. **Calculation of the U.S. National Fee (35 U.S.C. 371 (c)(1)) and other fees is as follows:**Based on amended claim(s) per above item(s) ☐ 12, ☐ 14, ☐ 17, ☒ 25, ☐ 25.5 (hilitte)

| | | | | | | | |
|--|----|------------|---|-----------------|---|-----|---------|
| Total Effective Claims | 10 | minus 20 = | 0 | x \$18/\$9 | = | \$0 | 966/967 |
| Independent Claims | 2 | minus 3 = | 0 | x \$80/\$40 | = | \$0 | 964/965 |
| If any proper (ignore improper) Multiple Dependent claim is present, | | | | add \$270/\$135 | + | 0 | 968/969 |

BASIC NATIONAL FEE (37 CFR 1.492(a)(1)-(4)): **→→ BASIC FEE REQUIRED, NOW →→→→**A. If country code letters in item 1 are not "US", "BR", "BB", "TT", "MX", "IL", "NZ", "IN" or "ZA"

See item 16 re:

| | | |
|--|------------------|---------|
| 1. Search Report was <u>not</u> prepared by EPO or JPO ----- | add \$1000/\$500 | 960/961 |
| 2. Search Report was prepared by EPO or JPO ----- | add \$860/\$430 | 970/971 |
| | <u>+860</u> | |

SKIP B, C, D AND E UNLESS country code letters in item 1 are "US", "BR", "BB", "TT", "MX", "IL", "NZ", "IN" or "ZA"

→ ☐ B. If USPTO did not issue both International Search Report (ISR) and (if box 4(b) above is X'd) the International Examination Report (IPER), ----- add \$970/\$485 +0 960/961

(only)
(one) → ☐ C. If USPTO issued ISR but not IPER (or box 4(a) above is X'd), ----- add \$710/\$355 +0 958/959

(these)
(4) → ☐ D. If USPTO issued IPER but IPER Sec. V boxes not all 3 YES, ----- add \$690/\$345 +0 956/957

→ ☐ E. If international preliminary examination fee was paid to USPTO and Rules 492(a)(4) and 496(b) satisfied (IPER Sec. V all 3 boxes YES for all claims), ----- add \$100/\$50 +0 962/963

27. **SUBTOTAL =** \$86028. If Assignment box 19 above is X'd, add Assignment Recording fee of ----\$40 +40 (581)29. Attached is a check to cover the ----- **TOTAL FEES** \$900

Our Deposit Account No. 03-3975

Our Order No. 60237275385

C#

M#

CHARGE STATEMENT: The Commissioner is hereby authorized to charge any fee specifically authorized hereafter, or any missing or insufficient fee(s) filed, or asserted to be filed, or which should have been filed herewith or concerning any paper filed hereafter, and which may be required under Rules 16-18 and 492 (missing or insufficient fee only) now or hereafter relative to this application and the resulting Official document under Rule 20, or credit any overpayment, to our Account/Order Nos. shown above for which purpose a duplicate copy of this sheet is attached.

This CHARGE STATEMENT does not authorize charge of the issue fee until/unless an issue fee transmittal form is filed

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NOTE: File in duplicate with 2 postcard receipts (PAT-103) & attachments.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re PATENT APPLICATION OF

RITTER et al.

Appln. No.: New Application

Examiner: Unassigned

Filed: Herewith

Group Art Unit: Unassigned

TITLE: PAYMENT TRANSACTION
METHOD AND TRANSACTION SYSTEM

November 28, 2000

PRELIMINARY AMENDMENT

Hon. Commissioner of Patents
and Trademarks
Washington, D.C. 20231

Sir:

Entry and consideration of the following amendments in the
above-identified application are requested.

IN THE CLAIMS:

Please amend the claims as follows:

Claim 3, line 1, change "one of the claims 1 or 2" to
--claim 1--.

Claim 4, line 1, change "one of the claims 1 to 3" to
--claim 1--.

Claim 5, line 1, change "one of the claims 1 to 4" to
--claim 1--.

Claim 8, line 1, change "one of the claims 6 or 7" to
--claim 6--.

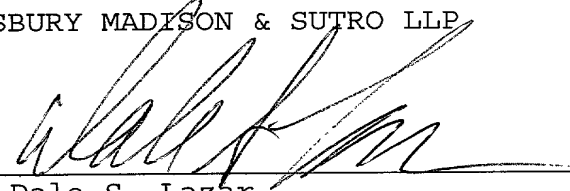
REMARKS

The amendments to the claims were made to eliminate the multiple dependencies. No new matter was intended to be added, nor is any new matter believed to have been added. Accordingly, an early action on the merits is earnestly solicited.

Respectfully submitted,

PILLSBURY MADISON & SUTRO LLP

By


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Payment Transaction Method and Payment Transaction System

This invention relates to a payment transaction method and a payment transaction system. In particular, the present invention relates to a payment transaction method as set forth in the preamble of the independent method claim 5 1 and a payment transaction system for execution of this payment transaction method.

Owing to the increasing popularity and spread of mobile telephony, more and more customers of service points, so-called points of sale (POS), for example 10 points of sale of products and/or services, are equipped with portable mobile telephones, in particular mobile radio telephones, which support the identification and authentication of a respective customer. Since non-cash forms of payment are being used more and more frequently for paying for products and/or services at the service point, and the customers are provided with numerous different 15 identification cards for this purpose from the various service points, there has been a desire to use the above-mentioned portable mobile devices for this purpose. Conventional mobile radio telephones comprise an identification module, a so-called SIM (Subscriber Identification Module) chipcard, which contains a clear user identification, for example an IMSI (International Mobile 20 Subscriber Identity), by means of which the respective user can be identified in a telecommunications network. To prevent the use of such a mobile device by an unauthorized user, a user must first authenticate himself at the mobile device, for example by entering a personal code (Personal Identification Number, PIN) by means of operating elements of the mobile device, which code, with the aid of 25 security services, is compared with a value stored on the SIM chipcard.

Described in the patent application EP 708 547 A2 is the use of a mobile radio telephone as the authenticated transaction controller. According to the teaching disclosed in EP 708 547 A2, a customer first authenticates himself in a sales store at his mobile radio telephone, for example through entry of a personal 30 identification code; afterwards the store operator and the customer agree upon a transaction password, which is entered in his mobile radio telephone by the customer, and is transmitted wirelessly, together with identification data, for

example the appliance number and the telephone number of the mobile radio telephone, to a receiver of a payment terminal of the sales store. According to the teaching disclosed in EP 708 547 A2, the respective amount to be paid, which is either supplied by the payment terminal or is entered by the customer in his

5 mobile radio telephone and is transmitted together with the transaction password and the identification data to the receiver of the payment terminal, and the identification data are passed on by the sales store to a credit center for credit checking. The transaction password described in EP 708 547 A2 makes it possible in particular for the payment terminal to assign the data on the respective

10 transaction transmitted from the mobile radio telephone, and thereby not be interfered with through possible transmissions from other mobile radio telephones.

It is the object of this invention to propose a new and better payment transaction method and a new and better payment transaction system, which can be used in particular for service points with a plurality of payment terminals and a

15 plurality of customers with mobile devices.

According to the invention, this object is attained in particular through the elements of the independent claims. Further preferred embodiments follow moreover from the dependent claims and from the specification.

This object is achieved through the present invention in particular in that:

20 - in the payment transactions between a customer with a portable mobile device, for example a mobile radio telephone or a palm or laptop computer, capable of communication, and a service point with a plurality of payment terminals, in which payment transactions a payment terminal of the service point determines a total transaction amount to be paid and a transaction identification assigned to this total transaction amount, and informs the customer about this

25 total transaction amount and this transaction identification, the payment terminal adds a payment terminal identification to the transaction identification upon determining the transaction identification, which payment terminal identification makes it possible to identify the respective payment terminal from a plurality of

30 payment terminals existing at the service point;

- via a contactless device interface, for example an infrared interface or a radio interface, the mobile device transmits the transaction identification entered

into the mobile device by the customer to the payment terminal identified through the payment terminal identification;

- after receipt of the transaction identification, the payment terminal transmits a payment request, containing at least one service point identification, the payment terminal identification and the total transaction amount, via the contactless device interface to the mobile device, and

- in the mobile device, a payment record is prepared which comprises a linking of the payment request to a customer identification of the customer, and transmits it from the mobile device to the payment terminal via the contactless device interface.

Thus in the payment transaction method and payment transaction system according to the invention, a payment transaction between a customer with a portable mobile device and a service point with a plurality of payment terminals is carried out in two phases. In the first phase, in which the transaction identification is determined, is made known, is entered by the customer in his mobile device, and is transmitted to the payment terminal, identified through the transaction identification, the payment terminal taking part in the respective payment transaction and the mobile device taking part in the respective payment transaction are assigned to one another, a logical communication link being established, for example, between these payment transaction partners. Then, in the second phase, the financial aspect of the payment transaction can be carried out between the payment transaction partners, the payment request of the payment transaction being transmitted from the payment terminal to the mobile device taking part in the respective payment transaction, and, for example after the payment request has been accepted by the respective customer by means of operating elements of the mobile device, a payment record being prepared in the mobile device in that the payment request is linked to a customer identification of the customer, and, for example, is provided with an electronic signature of the customer, or is executed as a secured certificate, and the payment record being transmitted from the mobile device to the payment terminal taking part in the respective payment transaction, where the payment record is further processed and/or passed on, for example to a clearing point.

The advantage of this two-phase procedure consists in that prior to the exchange of financial data of the cashless payment transaction, the payment transaction partners are clearly assigned to one another, whereby the authenticity of the two partners can also be checked, for example, so that payment requests
 5 from a payment terminal can be automatically transmitted to the responsible mobile device, and made available there to the responsible customer, and payment records, which can be provided in particular with an electronic signature of the customer, can be automatically transmitted from the responsible mobile device to the responsible payment terminal.

10 During transmission of the transaction identification, entered by the customer, from the mobile device to the payment terminal, a sender identification is preferably co-transmitted, for example an appliance identification of the mobile device or a logical or physical address of the contactless interface of the mobile device, and the payment request from the payment terminal is transmitted to the
 15 mobile device, determined through this sender identification. The advantage of the co-transmitted sender identification consists in that the payment terminal can address a mobile device directly as the payment transaction partner, and other mobile devices, which are not participating in the respective payment transaction, do not have to examine the contents of unaddressed communications received
 20 from a plurality of payment terminals.

In an embodiment variant, the payment terminal increases at least once the transmitting power of the contactless device interface and transmits the payment request with the increased transmitting power to the mobile device if the payment terminal has not received any payment record from the mobile device within a
 25 predefined time period from the transmission of the payment request without power increase to the mobile device. The varying of the transmitting power has the advantage that, on the one hand, other mobile devices, which are not participating in the respective payment transaction and are usually located at a greater distance from the payment terminal than a mobile device taking part in the
 30 payment transaction, are not unnecessarily disturbed by communications of the payment terminal, and that, on the other hand, if the mobile device taking part in the payment transaction is located outside the range of the not increased

transmitting power of the payment terminal, it can nevertheless still be reached through the increase in the transmitting power.

Before transmission of the payment record to the payment terminal, data about the type of payment are preferably added to the payment record in the
 5 mobile device, for example charging to a particular credit card number, debiting a particular customer account, debiting a particular bank account, or debiting from a prepaid monetary amount stored in the mobile device, for example on the SIM card of the mobile device. The addition of data about the intended type of payment has the advantage that the flexibility of the payment transaction method
 10 and payment transaction system according to the invention is thereby increased, and that, depending upon the type of desired payment type, at least certain payment transactions can be entered directly (on-line) and automatically, while others can be entered subsequently (off-line), for example with the aid of a clearing point suitable for this purpose.

15 In an embodiment variant, the payment record is stored in the mobile device, for example on the SIM card of the mobile device. The advantage of storing of payment records in the mobile device consists in that it is thereby made possible for the customer to keep records about payment transactions made and to use a payment record stored in the mobile device as a receipt, in particular
 20 when the payment request contained in the payment record includes a certificate or an electronic signature of the respective service point.

In an embodiment variant, the customer authenticates himself at his mobile device, for example with a biometric feature, for example a fingerprint, a voice pattern or an eye pattern. The use of biometric features for authentication of a
 25 user has the advantage that the security entailed therewith is higher than with the use of a personal code, which can be guessed by wrongful users, for example, or can be forgotten by the rightful user.

One embodiment of the present invention will be described in the following with reference to an example. The example of the embodiment will be illustrated
 30 by the following single attached figure:

Figure 1 shows a block diagram which illustrates schematically a service point in which a plurality of mobile devices and a plurality of payment terminals

are located, the payment terminals being connected to a clearing point via a telecommunications network.

In Figure 1, elements designated by the same number, are to be considered as equivalent elements. The reference numeral 5 in Figure 1 relates
 5 to a service point, a so-called point of sale (POS), for example a sales point for products and/or services accessible to the public. As illustrated in Figure 1, a plurality of payment terminals 2 and a plurality of mobile devices 1 carried by customers are located at the service point 5.

The portable mobile devices 1 are, for example, mobile radio telephones,
 10 laptop or palmtop computers or other suitable portable mobile devices which have a contactless device interface 11 in order to communicate with corresponding contactless device interfaces 21 of the payment terminals 2, i.e. to exchange data bidirectionally.

The contactless device interfaces 11, 21 shown schematically in Figure 1
 15 each comprise the necessary hardware elements for the transmitter and receiver of the contactless device interface, for the control of the contactless device interface as well as for the connection of the contactless interface to a processor 16, 26 of the mobile device 1, respectively of the payment terminal 2. The contactless device interfaces 11, 21 shown schematically in Figure 1 each
 20 additionally comprise programmed software modules and software interfaces which are needed for the operation and control of the contactless interface 11, 21, and which also execute the communications protocol or protocols necessary for communications processing. The contactless device interfaces 11, 21 are, for example, infrared interfaces, for example High Speed Infrared (HSIR) interfaces
 25 or IrDA (Infrared Data Association) interfaces, inductive interfaces, for example Radio Frequency Identification (RFID) interfaces, Home RF (Radio Frequency) interfaces, Digital European Cordless Telecommunications (DECT) interfaces or other Cordless Telecommunications System (CTS) interfaces, or high-frequency radio interfaces, in particular so-called bluetooth interfaces, which work, for
 30 example, at 2.4 GHz, and at the time of writing the application for the present invention were described on the Internet on the page www.bluetooth.com.

The term "software module" used in the present specification relates in each case to a program code which is stored in a memory and is executed on a processor, for example in cooperation with suitable operational systems and/or with the aid of services of virtual platforms, e.g. Java Virtual Machine (Java is a registered trademark of Sun Microsystems), so that the processor can be controlled in such a way that it executes the respective functions associated with the software module. One skilled in the art will understand that the programming language used for execution of the software module does not change the sense of the present invention, but that however the use of certain programming languages, for example Java or another object-oriented and platform-independent programming language, can very well have advantages known to one skilled in the art.

The payment terminals 2 are based, for example, on conventional electronic point of sale systems, which are equipped with operating elements and price detection components (not shown), e.g. laser scanners, and comprise at least one processor 26 as well as a contactless device interface 21, described above. The payment terminals 2 comprise a transaction identification module 22, which is designed as the programmed software module, for example, which establishes a transaction identification for a payment transaction. This transaction identification contains at least one payment terminal identification, which makes it possible to determine a payment terminal 2 in question from among the plurality of payment terminals 2 existing at the service point 5, as well as a transaction number which is incremented progressively, for example, with each new payment transaction.

The transaction identification determined for a payment transaction is displayed by the payment terminal 2, for example by the transaction identification module 22 or by another programmed software module of the payment terminal 2, on a display 29 of the payment terminal 2 together with the total transaction amount to be paid by the respective customer, determined by the payment terminal 2 for this payment transaction. The respective customer is thereby informed about the total transaction amount and the transaction identification for the payment transaction.

If the customer would like to pay the total amount of the payment transaction by means of his mobile device 1, he switches on his mobile device 1, and, to be on the safe side, in an embodiment variant, is requested by an authentication module 12 of the mobile device 1, for example a programmed software module, to authenticate himself. The customer is asked, for example, to enter a personal identification code (Personal Identification Number, PIN), which is received by the authentication module 12 and is compared with a code stored in a protected way in the mobile device 1, for example on a SIM card 17 (Subscriber Identification Module) of the mobile device 1. In a variant, the authentication module has moreover hardware components and further software components in order to receive a biometric feature from the customer for authentication and to compare it with a biometric feature previously stored in a protected way in the mobile device 1, for example on a SIM card 17 of the mobile device 1. The biometric feature is, for example, a voice pattern, which is recorded by means of a microphone of the mobile device 1, a fingerprint or a facial feature, which are captured with a video sensor of the mobile device 1, or an eye pattern, e.g. a pattern of the iris or the retina, which is recorded with a suitable scanner.

After successful authentication, if applicable, the customer selects on his mobile device 1, for example by means of the operating elements 18, the function "payment transaction" from a function menu shown on the display 19 of the mobile device 1. The menu and function flow control is carried out, for example, through a programmed software module of the mobile device 1, e.g. through a Java applet, which is stored, for example, on the SIM card 17 of the mobile device 1. The software module or modules for execution of the function "payment transaction" can be disabled for security reasons, for example by an operator in charge via the contactless device interface 11 or via a mobile radio network (not shown), for example in that a signed or certified command is transmitted to the mobile device 1 using suitable messages.

After selection of the function for the payment transaction, the user is prompted by the transaction response module 13 of the mobile device 1, for example a programmed software module, to enter the transaction identification for the respective payment transaction. The customer can type in the transaction

identification, for example, by means of the operating elements 18 of the mobile device 1. To prevent entry errors, in a variant, the transaction response module 13 can request, via the contactless device interface 11, 21, from the payment terminal 2 the transaction identifications of the current payment transactions so
 5 that the customer can enter the transaction identification for the respective payment transaction by selecting the respective transaction identification by means of operating elements 18 of the mobile device 1 from a list of current transaction identifications displayed on the display 19 of the mobile device 1.

The transaction response module 13 takes from the transaction
 10 identification received from the customer the payment terminal identification contained therein, and transmits, as indicated by the arrow S1 in Figure 1, the transaction identification to the payment terminal 2 identified through this payment terminal identification. One skilled in the art will understand that, depending upon the type of contactless device interface 11, 21, the payment terminal identification
 15 can thereby be used by the transaction response module 13 as address on the physical layer or as address on one of the above-lying layers (protocol layer), according to the OSI reference model (Open Systems Interconnection) defined by the ISO (International Standards Organisation). In transmitting the transaction identification to the respective payment terminal 2, a sender identification,
 20 identifying the respective mobile device 1, or respectively the contactless interface 11 of the respective mobile device 1, is added by the transaction response module 13, or by corresponding functions of the contactless device interface 11, to the transaction identification for co-transmission.

In the payment terminal 2 in question, the transmitted transaction
 25 identification, and if applicable the added sender identification, is received via the contactless interface 21, and a logical communications link is established, for example, between the payment terminal 2 and the mobile device 1. Then prepared by a payment request module 23 of the respective payment terminal 2, for example a programmed software module, is a payment request containing at
 30 least the service point identification of the service point 5, the payment terminal identification of the respective payment terminal 2 as well as the total transaction amount to be paid for the respective payment transaction. One skilled in the art

will understand that the service point identification and the payment terminal identification can also be replaced by a clear, combined payment terminal identification; however a transaction identification thereby results which is not suitable for manual typing into a mobile device 1, however, owing to the number of necessary digits. The payment request module 23 transmits the prepared payment request, as indicated by the arrow S2 in Figure 1, via the contactless device interface 21 to the mobile device 1 from which the transaction identification was received. For this purpose the payment request module 23 uses the sender identification received from this mobile device 1, or respectively the previously established logical communications link, or, in a variant, transmits the payment request in a broadcasting way, the payment request being filtered in the receiving mobile devices 1 on the basis of the transaction identification. It should be mentioned here that, to increase security, in particular to establish the authenticity of the payment terminal 2, the payment request is provided with an electronic signature of the service point 5 by the payment request module 23, or is executed as a secured certificate.

In the mobile device 1 in question, the transmitted payment request is received via the contactless interface 11, and, depending upon the variant, is filtered, if applicable, on the basis of the transaction identification contained therein, in that the transaction identification contained in the payment request is compared by the mobile device 1 with the transaction identification previously transmitted to the payment terminal 2. A payment record is prepared in a payment record module 14 of the mobile device 1, for example a programmed software module, on the basis of the received payment request, for example after the authenticity of the payment request, respectively the authenticity of the payment terminal 2, has been checked and the payment request has been displayed to the customer on the display 19 of the mobile device 1, and the customer, by means of the operating elements 18 of the mobile device 1, has accepted and thereby enabled the payment. The prepared payment record comprises the received payment request and a customer identification of the customer, for example a IMSI (International Mobile Subscriber Identity) or a user number especially allocated for this type of payment described here, which in

each case are stored on the SIM card 17 of the mobile device 1. To improve security, the payment record can be provided with an electronic signature of the respective customer 5 <sic.> by the payment record module 14, or can be executed as a secured certificate.

5 In addition, the payment record module 14 preferably adds to the payment record indications about the desired type of payment, which indications are stored, for example, as the default value in the SIM card 17 of the mobile device 1 or are requested by the respective customer via the display 19 of the mobile device 1 and are received via the operating elements 18. The indications about
10 the desired type of payment specify, for example, a desired charging of the total transaction amount to a particular credit card number, a debiting of a particular customer account, a debiting of a particular bank account or a debiting from a prepaid monetary amount stored in the mobile device, for example on the SIM card of the mobile device. The payment record module 14 transmits the prepared
15 payment record, as indicated by the arrow S3 in Figure 1, via the contactless device interface 11, 21 to the payment terminal 2 from which the payment request was received. The payment records are preferably stored, for example by the payment record module 14, in a memory 15 of the mobile device 1, for example on a SIM card 17 of the mobile device 1, so that they can be used later as a receipt
20 and/or so that they are available to the respective customer for administrating the payment transactions he has made.

The payment record is received in the respective payment terminal 2, for example by the payment request module 23, and is further processed, taking into consideration the indications contained therein about the type of payment desired
25 by the customer, if applicable, and the purchased products and/or services are released to the customer, for example after successful checking of the credit worthiness of the customer and/or after checking of the signature of the customer. By means of a communications module 24, the payment records can be passed on, for example, to a clearing point 4 via the telecommunications network 3.

30 If, within a predefined time period from the transmission of the payment request, the payment request module 23 has received no payment record from the mobile device 1, the payment request module 23, in a variant embodiment, can

increase the transmitting power of the contactless device interface 21, for example via the software interface of the contactless device interface 21, and can transmit the payment request again. The normally used transmitting power can thereby be calculated in such a way that it suffices to transmit data successfully
5 from the payment terminal 2 via the contactless device interface 21 to the mobile device 1 when the mobile device 1 is located in the immediate vicinity of the payment terminal 2 in question, for example within one to two meters, without thereby disturbing mobile devices 1 further away.

As has already been mentioned in connection with the menu and function
10 flow control for the selection of the function "payment transaction", the software modules, in particular the transaction response module 13 and the payment record module 14 as well as software components of the authentication module 12, can be stored, for example as Java applet, e.g. on the SIM card 17 of the mobile device, and can also be executed on a processor of the SIM card 17, for
15 example. The software modules can moreover be designed so that they can be disabled by an authorized operator via the contactless device 11 or via a mobile radio network (not shown), for example if the owner of the mobile device 1 has reported the loss of the mobile device 1 in question to an operator in charge.

It should be pointed out here that in the above specification, only mobile
20 radio devices and palm and laptop computers have been cited as concrete examples for the mobile device 1. One skilled in the art will understand, however, that also other mobile devices can be used, in particular simpler mobile devices 1 with suitable contactless device interfaces 11, which mobile devices 1 do not comprise any mobile telephone components for communication over a mobile
25 radio network, for example, and which have only the necessary software module and hardware components for participating in the described method, and which are made available, for example, to the customer by the service point 5 for their stay at the service point 5, and into which the customers can insert their personal chipcards, for example SIM cards 17, in particular for authentication and
30 identification purposes, but also for the storing of payment records.

Furthermore, as a final point, it should be added that, to increase security, the data transmissions via the contactless interface 11, 21 can be encrypted according to a method known to one skilled in the art.

List of Reference Symbols

| | |
|----|--|
| 1 | mobile device |
| 2 | payment terminal |
| 3 | telecommunications network |
| 4 | clearing point |
| 5 | service point (POS) |
| 11 | contactless device interface |
| 12 | authentication module |
| 13 | transaction response module |
| 14 | payment record module |
| 15 | memory means |
| 16 | processor |
| 17 | SIM card |
| 18 | operating elements |
| 19 | display |
| 21 | contactless device interface |
| 22 | transaction identification module |
| 23 | payment request module |
| 24 | communications module |
| 26 | processor |
| 29 | display |
| S1 | transmission of the transaction identification |
| S2 | transmission of the payment request |
| S3 | transmission of the payment record |

Claims

1. Payment transaction method between a customer with a portable mobile device (1) and a service point (5), in which payment transaction method a payment terminal (2) of the service point (5) determines a total transaction amount to be paid and a transaction identification assigned to this total transaction amount, and informs the customer about the total transaction amount and the transaction identification, and in which payment transaction method the customer enters the transaction identification into the mobile device (1), wherein
 - the payment terminal (2), during determination of the transaction identification, adds a payment terminal identification to the transaction identification, which payment terminal identification makes it possible to identify the respective payment terminal (2) from a plurality of payment terminals (2) existing at the service point (5),
 - the mobile device (1) transmits, via a contactless device interface (11), the transaction identification, entered by the customer, to the payment terminal (2) identified by the payment terminal identification,
 - the payment terminal (2), after receipt of the transaction identification, transmits a payment request, which comprises at least one service point identification, the payment terminal identification and the total transaction amount, via the contactless device interface (21) to the mobile device (1), and in the mobile device (1) a payment record is prepared, which contains a linking of the payment request to a customer identification of the customer, and is transmitted from the mobile device (1) via the contactless device interface (11) to the payment terminal (2).
2. Payment transaction method according to claim 1, wherein during the transmission of the transaction identification, entered by the customer, from the mobile device (1) to the payment terminal (2) a sender identification is co-transmitted, and wherein the payment terminal (2) transmits the payment request to the mobile device (1) established through the sender identification.

3. Payment transaction method according to one of the claims 1 or 2, wherein the payment terminal (2) increases the transmitting power of the contactless device interface (21) at least once, and transmits the payment request with the increased transmitting power to the mobile device (1), if the
 5 payment terminal (2) has not received any payment record from the mobile device (1) within a predefined time period from the transmission of the payment request without power increase to the mobile device (1).

4. Payment transaction method according to one of the claims 1 to 3, wherein in the mobile device (1) data about the type of payment are added to
 10 the payment record before transmission of the payment record to the payment terminal (2).

5. Payment transaction method according to one of the claims 1 to 4, wherein the customer is identified at his mobile device with a biometric feature before entering of the transaction identification.

6. Payment transaction system comprising a plurality of portable mobile devices (1) and a plurality of payment terminals (2) at a service point (5), which mobile devices (1) and payment terminals (2) each comprise at least one processor (16, 26) and one contactless device interface (11, 21) via which
 15 contactless device interface (11) the mobile devices (1) can communicate with the payment terminals (2), which payment terminals (2) each comprise means (29) of informing a customer about a total transaction amount to be paid of a payment transaction and a transaction identification assigned to this payment transaction,
 20

which payment terminals (2) each comprise a transaction identification module (22), which transaction identification module (22) in each case
 25 determines the transaction identification for a payment transaction, and in each case adds a payment terminal identification for the respective payment terminal (2) to the transaction identification,

which mobile devices (1) each comprise a transaction response module
 30 (13), which transaction response module (13) receives a transaction

identification entered by a customer by means of operating elements (18) of the respective mobile device (1) and transmits it via the contactless device interface (11) to the payment terminal (2) determined through the payment terminal identification contained in the transaction identification,

5 which payment terminals (2) each comprise a payment request module (23), which payment request module (23), after receipt of a transaction identification from a mobile device (1), transmits a payment request, comprising at least one service point identification of the service point (5), the payment terminal identification of the respective payment terminal (2) and the total
10 transaction amount of the payment transaction, determined through the received transaction identification, via the contactless device interface (21) to the mobile device (1) from which the transaction identification was received, and

 which mobile devices (1) each comprise a payment record module (14)
15 which payment record module (14) prepares a payment record comprising a payment request, received by the mobile device (1) from a payment terminal (2), and a customer identification of the respective customer, and transmits the prepared payment record via the contactless device interface (11) to the payment terminal (2) from which the payment request was received.

20 7. System according to claim 6, wherein the mobile devices (1) each comprise means to co-transmit a sender identification when transmitting the transaction identification, entered by the customer, to the payment terminal (2) and wherein the payment request module (23) comprises means to transmit the payment request to the mobile device (1) determined through the sender
25 identification.

 8. System according to one of the claims 6 or 7, wherein the payment terminals (2) each comprise means to increase the transmitting power of the contactless device interface (21), wherein the payment request module (23) comprises means to transmit the payment request with increased transmitting
30 power to a respective mobile device (1) if the payment terminal (2) has not

received a payment record from the respective mobile device (1) within a predefined time period from transmission of the payment request without power increase to the respective mobile device (1).

9. System according to one of the claims 6 to 8, wherein the payment
5 record module (14) comprises means to add to the payment record data on the type of payment before the transmission of the payment record to a payment terminal (2).

10. System according to one of the claims 6 to 9, wherein the mobile devices (1) each comprise an authentication module (12) to receive at least one biometric feature from a customer and to authenticate the customer on the basis of the received biometric feature.

Abstract

Payment transaction method and payment transaction system in which payment transactions between customers with portable mobile devices (1), for example mobile radio telephones, and a plurality of payment terminals (2) are carried out at a service point (5), the payment terminal (2) responsible for a payment transaction informing a respective customer about the total transaction amount and the transaction identification of the payment transaction, the transaction identification comprising a payment terminal identification, the mobile device (1) transmitting, via a contactless device interface (11), the transaction identification, entered in the mobile device (1) by the customer, to the payment terminal (2), identified through the payment terminal identification, the payment terminal (2) transmitting, after receipt of the transaction identification, a payment request comprising a service point identification, the payment terminal identification and the total transaction amount, via the contactless device interface (21) to the mobile device (1), and a payment record which comprises the payment request and a customer identification, being prepared in the mobile device (1) and being transmitted from the mobile device (1) via the contactless device interface (11) to the payment terminal (2).

(sole Figure)

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In re PATENT APPLICATION OF

RITTER et al.

Appln. No.: New Application

Examiner: Unassigned

Filed: Herewith

Group Art Unit: Unassigned

TITLE: PAYMENT TRANSACTION
METHOD AND TRANSACTION SYSTEM

November 28, 2000

DRAWING CHANGE AUTHORIZATION REQUEST

Hon. Commissioner of Patents
Washington, D.C. 20231

Sir:

Authorization is requested to change Fig. 1 as indicated
on the attached sheets in Red.

Respectfully submitted,

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1/1

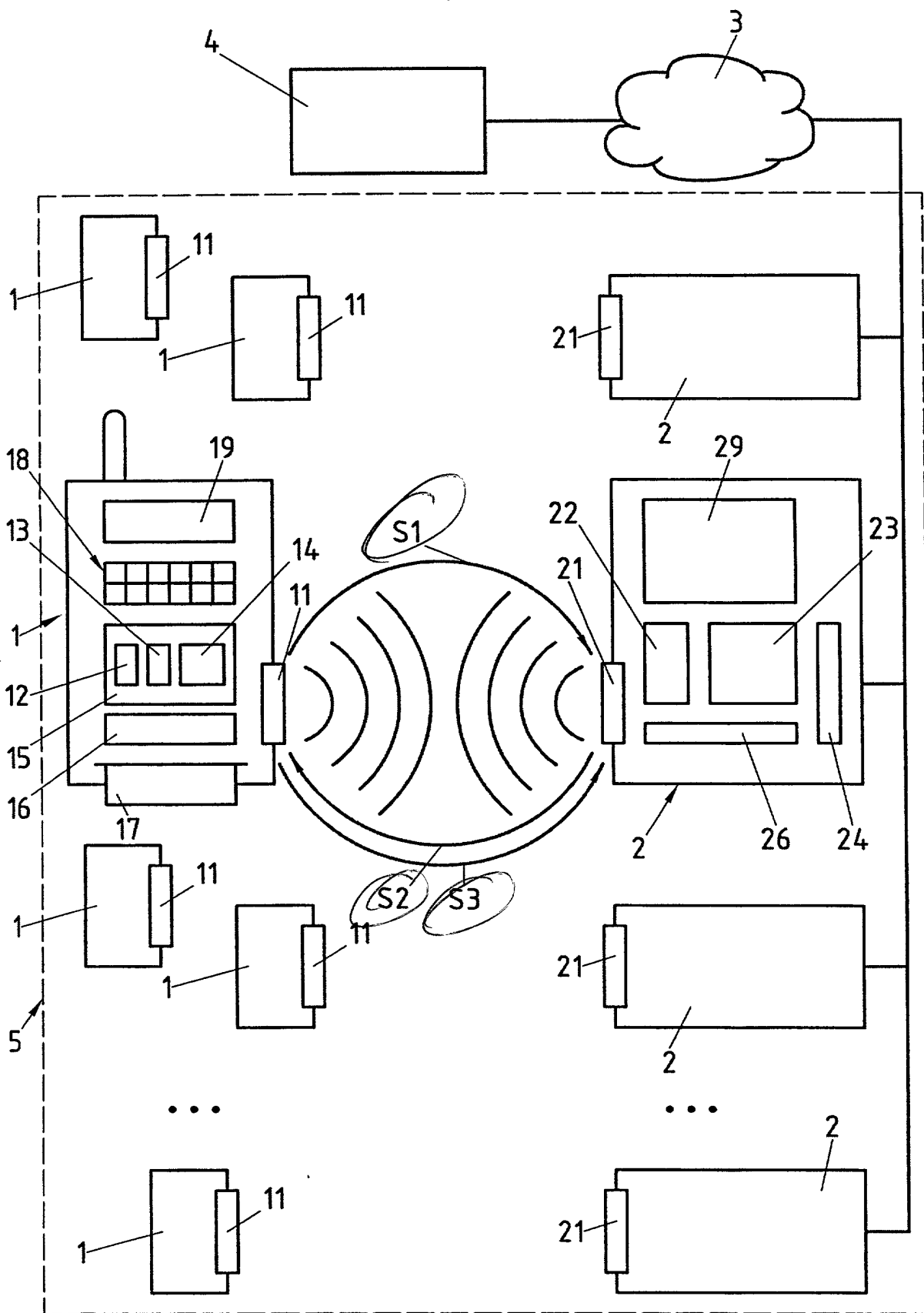


FIG. 1

1/1

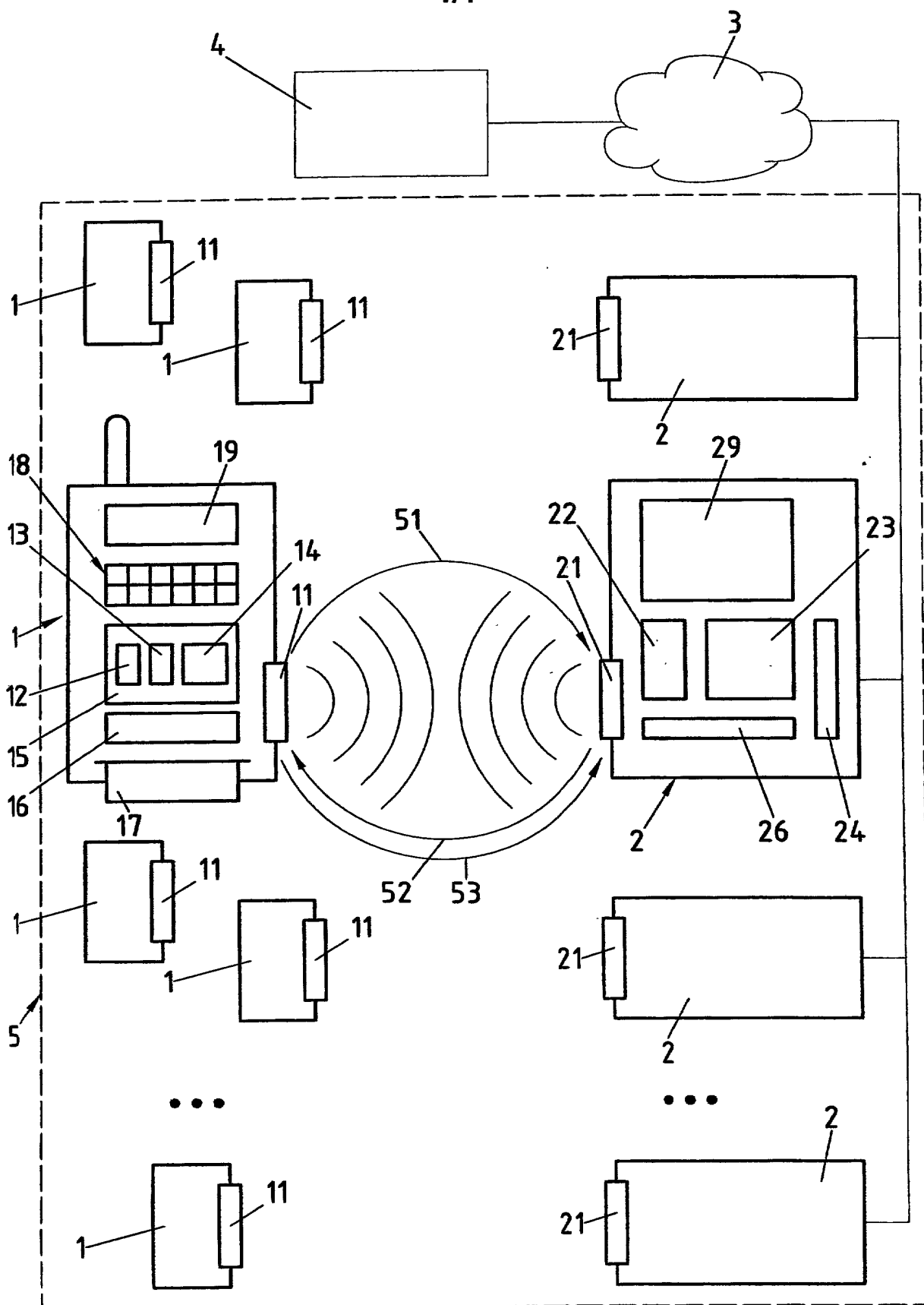


FIG. 1

FOR UTILITY/DESIGN
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DECLARATIONS

RULE 63 (37 C.F.R. 1.63)
DECLARATION AND POWER OF ATTORNEY
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FORM

As a below named inventor, I hereby declare that my residence, post office address and citizenship are as stated below next to my name, and I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the INVENTION ENTITLED
Payment transaction Method and Payment Transaction System

the specification of which (CHECK applicable BOX(ES))

X ☒ is attached hereto.

BOX(ES) ☐ was filed on _____ as U.S. Application No. _____

☒ was filed as PCT International Application No. PCT/CH 99 /00503 on 25 October 1999

and (if applicable to U.S. or PCT application) was amended on _____

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above. I acknowledge the duty to disclose all information known to me to be material to patentability as defined in 37 C.F.R. 1.56. I hereby claim foreign priority benefits under 35 U.S.C. 119/365 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate filed by me or my assignee disclosing the subject matter claimed in this application and having a filing date (1) before that of the application on which priority is claimed, or (2) if no priority claimed, before the filing date of this application:

PRIOR FOREIGN APPLICATION(S)

Number

Country

Day/MONTH/Year Filed

Date first Laid-

open or Published

Date Patented

or Granted

Priority Claimed

Yes

No

I hereby claim domestic priority benefit under 35 U.S.C. 119/120/365 of the indicated United States applications listed below and PCT international applications listed above or below and, if this is a continuation-in-part (CIP) application, insofar as the subject matter disclosed and claimed in this application is in addition to that disclosed in such prior applications, I acknowledge the duty to disclose all information known to me to be material to patentability as defined in 37 C.F.R. 1.56 which became available between the filing date of each such prior application and the national or PCT international filing date of this application:

PRIOR U.S. PROVISIONAL, NONPROVISIONAL AND/OR PCT APPLICATION(S)

Application No. (series code/serial no.)

Day/MONTH/Year Filed

Status

pending, abandoned, patented

Priority Claimed

Yes

No

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

And I hereby appoint Pillsbury, Madison & Sutro LLP, Intellectual Property Group, 1100 New York Avenue, N.W., Ninth Floor, East Tower, Washington, D.C. 20005-3918, telephone number (202) 861-3000 (to whom all communications are to be directed), and the below-named persons (of the same address) individually and collectively my attorneys to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith and with the resulting patent, and I hereby authorize them to delete names/numbers below of persons no longer with their firm and to act and rely on instructions from and communicate directly with the person/assignee/attorney/firm/ organization who/which first sends/sent this case to them and by whom/which I hereby declare that I have consented after full disclosure to be represented unless/until I instruct the above Firm and/or a below attorney in writing to the contrary.

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